APPENDIX B

CHECKLIST FOR STUDIES REQUIRED

The development of waterways for navigation involves the study and evaluation of many factors to assure efficiency, safe conditions, and reliability at minimum cost. The following are some of the studies and factors that should be considered in the planning and design phase:

a. Hydraulic and geological characteristics of the stream, and locations of existing bridges, highways, railroads, and industrial complexes.

b. Channel depths and widths available and requirements for traffic anticipated.

c. Need for channel realignment, training structures, and/or locks and dams.

d. Optimum locations for locks and dams, if required.

e. Alignment and velocity of currents and movement of sediment in critical reaches and at proposed lock and dam sites.

f. Effects of various arrangements of lock or locks, dam and overflow weirs, and auxiliary lock walls including new concepts and orientation of the structures.

g. Number and size of spillway gate bays and effects of overflow weirs and embankment on cost of project and on navigation conditions.

h. Use of a navigable pass to reduce the height of lock walls.

i. Effects of structures on flooding, overbank flow, and movement of sediment.

j. Effects of various types of lock filling and emptying systems on navigation.

k. Effects of developments on water quality and local environment.

l. Feasibility of powerhouse installation and effects on navigation.

m. Feasibility of water conservation methods.

n. Effectiveness of various types of river training and stabilization structures and navigation aids.

o. Navigation and flow conditions during construction.

p. Hydraulic model studies to determine:

(1) Optimum design for spillway and stilling basin operating under various conditions (full or partial width).

(2) Navigation conditions in lock approaches, best arrangement of locks, dam, and training structures, movement of ice and debris, and conditions during construction (comprehensive fixed bed).

(3) Effects of structures on movement of sediment, channel development in lock approaches and in critical reaches, and scour with various cofferdam plans for construction (comprehensive movable bed).

(4) Conditions at other locations as needed such as harbor entrances, docking and assembly areas, and at bridges (fixed or movable bed).

q. Baseline environmental and water quality data collection and evaluation, and consideration of applicable environmental laws and regulations.

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